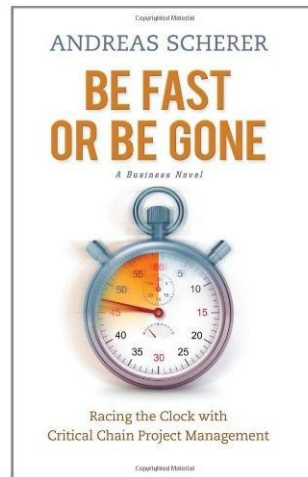


Be Fast or Be Gone

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Book abstract



Be Fast or Be Gone is a business novel that explains how to implement Critical Chain Project Management and presents the results obtained with this approach derived from the Theory Of Constraints (TOC).

In this book, in order to save his son, Mike Knight is hired by the company Altus Labs so that the drug Supragrel (drug against cancer) goes from test phase I to test phase II in 6 months instead of 1 year. Secondly, its mission is to manage the entire Altus Labs project portfolio and accelerate the development of all molecules.

This book is important for anyone interested in the Critical Chain or Critical Chain Project Management (CCPM). Indeed, it is another book, *Critical Chain* written in 1997 by Eliyahu Goldratt the founder of Theory of Constraints, which is at the origin of these ideas, but in his work it is difficult to get an idea of the implementation process. On the other hand, Scherer's novel, based on a business case from the pharmaceutical sector, clearly describes the act, allowing manufacturers in other sectors to get a fairly precise idea of how to implement Chain Critical in their own environment.

Be Fast or Be Gone is written by one of the directors of ProChain, an American company that sells project management software based on the Critical Chain principles. It should come as no surprise that he promotes this type of IT tool and the related consultancy services.

This novel is highly recommended to all those concerned with the development of new products who would like to understand why and how the Critical Chain approach could greatly increase the performance of their organization in terms of:

- Substantial reduction (> 30%) in the average duration of projects (better Time To Market),
- Strong improvement in meeting project deadlines,
- Increase in resource productivity.

1. The context and the Critical Chain implementation on the Supragrel project

1.1. Context

Mike Knight and his wife Sally learn that their son Tim has a cancerous brain tumor. After discussion with Tim's doctor, it turns out that a drug that could cure their son, Supragrel, is under development at Altus Labs. This molecule is currently in test phase I and should go into test phase II. Tim may be included in the study when the drug is in phase II, but Supragrel might not be available in time for him. Mike Knight, who works in a semiconductor company, has already implemented the Critical Chain in order to significantly reduce development times. He then decides to contact Charlene Palmer, vice president of Project Management at Altus Labs, to convince her that he can accelerate the development of Supragrel thanks to Critical Chain. He is hired by the company to manage the development of Supragrel with the aim to be in phase II as soon as possible so his son can benefit from it.

1.2. Project status the common causes of project delays

During the first project progress meeting he participates to, Mike Knight realizes that, despite the technical competence and the good will of the people, the project situation is catastrophic:

- The deadline announced for the transition to phase II is 1 year, which is too long for Tim,
- Only 40% of milestones are on time and this indicator is deteriorating more and more,
- During meetings, people arrive late, read their emails, do not know the progress, etc.

He then explains them why Supragrel has a too long planned deadline, and why it may not be respected:

- **Sequencing tasks in series** imposes a longer completion time. When planning projects, many tasks are put in series, without wondering if the 2 tasks are necessarily linked and if the second one really depends on the first. If they are independent, these tasks can be carried out in parallel, thus saving time on the general schedule.
- **The key milestones, and the intermediate milestones** associated to the bonus system, promote significant durations and delays in the project. The system provides that those who do not respect their milestones do not have a bonus, leading to 2 phenomena:
 - o **The multiplication of safety**: each employee creates its own time margin or buffer to be sure of carrying out their task, knowing that they have several projects at the same time, and that the hierarchy will ask them to reduce this time. This multiplication of margins considerably increases the project time. On the other hand, if one finishes its task in advance, they will not necessarily notify their manager to keep the same safety margin in a future project.
 - o The **"Schedule Chicken"**: To avoid losing their bonus, employees do not say that they are late or that they will not be able to meet the milestone, hoping that someone else will say it first. This situation does not identify, anticipate and manage the risk of delay
- **Multitasking does not allow to be efficient and do right the first time**. By multiplying the actions realized at the same time, the employee may experience problems of concentration and control of its tasks, thus risking making mistakes. In addition, by performing several tasks at the same time, each of these tasks will have a much longer duration than if they were done one after the other (time to get back into the file, etc.).
- **The student syndrome**: Starting the requested work at the last minute, which thus consumes the safety margin and, leads to delay if there is an unexpected issue or hazard.

After these explanations, the team is ready to listen to the proposed solutions and understand how the Critical Chain works.

1.3. The Critical Chain rules

The Critical Chain consists of 3 founding rules and their application.

1.3.1. First rule: A schedule with aggressive but realistic dates

The objective is to reduce, when planning, the time taken to complete the project without jeopardizing it. To achieve this, several principles must be respected:

- For each stage, check the elements required to start the work and the information available at the end of the work. This way the real dependence between the tasks is revealed, and tasks might be planned in parallel, and thus save time.
- People must then estimate and give the exact time each task takes, considering that they are not multitasking, that is to say they devote themselves 100% of their allocated time to realize it.
- Finally, to protect the entire project and possible delays, a project buffer will be inserted. The duration of this buffer generally corresponds to half the duration of the project. For example, if the initial planning gives a 4-month project, the project buffer will be 2 months. In the end, the project, whose total duration will be 6 months, will only be considered late if the project buffer is fully used.

1.3.2. Second rule: the relay race

First, resources needed for each task must be defined in order to identify the Critical Chain. The Critical Chain is the longest chain which takes into account the interdependence of tasks and resources. Computer software allows the Critical Chain to be quickly defined and “recalculated” in the event of a change in the schedule. Mike Knight told his team that one day late on a task on the Critical Chain leads to a day late for the project. He compares this functioning to that of a relay race, that is to say:

- All data to start a task must be ready,
- The resource starts to work immediately after the "handover",
- The resource on the Critical Chain should not be disturbed, and its multitasking must be minimized.

In order to ensure this functioning a "weekly" meeting will be organized.

1.3.3. Third rule: identification and analysis of risks

This last rule is the role of the Project Manager. He must see obstacles and bypass them, be on the lookout for risks, especially for critical tasks, etc. However, to carry out this work, employees must raise the risks and the possible solutions.

1.4. Critical Chain implementation on Supragel project

With all these elements, the Supragel project team starts the implementation of the method.

1.4.1. Planning

To reschedule the project in this spirit, the team relies on existing templates and the skills and knowledge of each. One of Mike Knight's first observations is that the services start to communicate with each other and naturally optimize the project. After an initial study of the planning, it emerges that the Critical Chain duration is 6 months with 3 months of additional project buffer. It is still too long for her son Tim to take advantage of this medication. Mike asked if further schedule optimizations are possible. 3 solutions are proposed:

- Take advantage of a production slot to make the drugs earlier, even if the dosage is not yet defined. It is enough to produce the minimum dosage and during tests give several piece of drugs according to the prescribed dosage.
- Perform the protocol review in 1 week instead of 3 weeks. Charlene gives her agreement and commitment so that management respects this action.
- Transport the phase I samples overnight to avoid transit times. This solution costs a little more money but saves 2 weeks.

These examples show that it is possible to save time by being a little more creative and that everyone is involved in optimizing the schedule. In the end, and by integrating these last optimizations, the Critical Chain duration decreases to 4 months and that of the project buffer to 2 months.

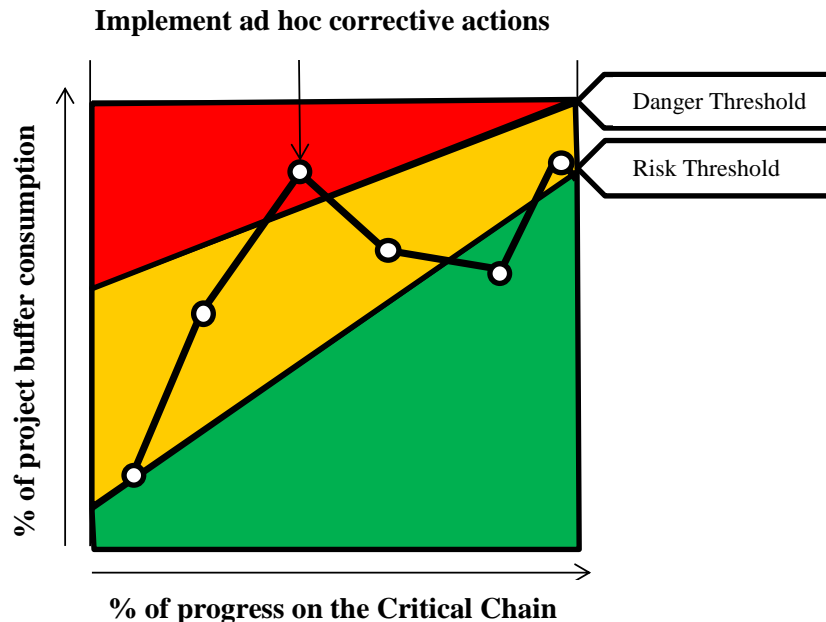
1.4.2. The monitoring indicator: the Fever Chart

To measure the “health” of the project, Mike Knight sets up the “Fever Chart”. From the progress information entered every week, this graph shows:

- What has been done and what remains to be done,
- The amount of buffer consumed and that remaining.

The Fever Chart is like shown below:

- On the abscissa: the percentage of the Critical Chain that has been achieved
- On the ordinate: the percentage of Project Buffer consumed



The color shows the "health" of the project:

- Red: most of the buffer is used, and there is a risk of project delay. Corrective actions must be put in place.
- Yellow: the project is on time but we must be vigilant to avoid being late.
- Green: the project is on time and is likely to be finished in advance.

1.4.3. The Weekly

Every Friday the project team keeps track of the tasks progress, and therefore of the project. Mike Knight analyzes this data and pays particular attention to the Critical Chain tasks, as well as to those which are not currently on the Critical Chain but may become so. Monday morning takes place the weekly meeting or the "Weekly". The objectives of this meeting are to:

- Know who does what
- Alert on relay passages
- Warn those, whose next tasks are on the Critical Chain, to make themselves available

These alerts are enough for people to organize themselves and plan their activities in order to fully focus on the task on the Critical Chain. These people benefit from an "organized" timetable, for example, not having to attend certain meetings. In addition, to symbolize the Critical Chain and handing over, the team decided that the person working on the Critical task will have a Staff on their desk. This visualization also lets other collaborators know that it should not be disturbed. With this method, Mike Knight's team successfully completed Phase II of the Supragrel in less than 6 months. So her son Tim can be part of the test study.

2. Placing the project portfolio under control with Critical Chain

2.1. Status of the project portfolio and the importance of development for Altus Labs

In light of these impressive results, the CEO of Altus Labs welcomes Mike Knight to take on a new mission. He explains that the pharmaceutical industry, and in particular Altus Labs, are in a difficult situation. Currently, to release a new drug it takes 12 years, but the exclusivity of its marketing lasts only a few years before the arrival of generics. These years of exclusivity do not make it possible to make the research and development of the drug profitable, or to finance the development of other molecules, in particular those that do not succeed.

In the next 4 years, Altus Labs will face a loss of \$12 billion because several drugs will lose their patent and their exclusivity. To anticipate this loss, the company wants to accelerate innovation and asks Mike Knight to deploy the Critical Chain to its entire portfolio of projects. Mike accepts this work which includes a project portfolio of 115 drugs in phase I and II; 32 molecules in phase III, and 15 drugs in phase IV.

After a quick diagnosis, he highlights 2 main problems:

- The milestones are too numerous, and there is a lack of reality in the commitment dates. Analysis of the project portfolio confirms that 60% of the milestones do not arrive on time for the reasons mentioned above.
- There are no real priorities, and a significant number of new projects are launched in R&D, thus preventing R&D from being organized effectively. In fact, to satisfy all projects, R&D does multitasking and thus increases each task commitment duration.

2.2. The proposed solutions

During the diagnostic restitution meeting, Mike Knight proposes solutions to resolve these dysfunctions and successfully accelerate the projects:

- Review the planning of all projects, existing templates are not enough. Make a new estimate of task duration without considering multitasking and by setting up a project buffer at the end of each project. He specifies at the same time that these buffers must in no case be removed by the hierarchy.
- Establish real priorities that allow everyone to organize themselves in their work.
- Establish in each project the Relay Race principle.
- Stop the measurement of project progress by accounting for passed milestones.

To implement these solutions, it requires:

- A team of 10 Project Managers who will be trained for 6 months to the Critical Chain method.
- New software for planning and monitoring projects with the method used.

On the other hand, he announces that in a year the entire portfolio of projects will be run under the Critical Chain method.

2.3. The implementation of Critical Chain

2.3.1. Projects prioritization

The method used to prioritize projects is to bring together outside the company, the CEO, Charlene, her superior and the project portfolio manager, with the objective of quantifying each project according to 3 criteria:

- Science: is the drug an innovation or a copy?
- The strategy: does the drug respond to the company's commitment to oncology, diabetes, neuroscience or not?
- Income: what is the potential income?

For each of these criteria, they define 3 levels: High (Post-it in green color), Medium (Post-it in yellow color) and Low (post-it in red color). After more than a day's work, they manage to quantify all the projects and prioritize them according to 3 levels.

The highest level, "the Eagles", corresponds to projects that have 3 green post-it notes or 1 green post-it note for the "income" criterion and 1 yellow post-it note for the "strategy" or "science" criterion. This category is considered a priority. They calculated that a 10% reduction in the cycle time of these projects was worth several billion dollars, and thus made it possible to finance future research.

2.3.2. The constraint or bottleneck

When identifying resources on project schedules, Mike Knight's team notes that clinical trials spend 75% of their time on the Critical Chain, and therefore represent the bottleneck of the company. Mike Knight informed the steering committee of it, and told them that by increasing the capacity of this service, they also increase the speed of projects completion and therefore the number of projects completed. To achieve this objective, several actions are implemented:

- The head of this service "kills" projects that bring nothing and use resources.
- The team analyzes the actions taken by the Lean / Six Sigma group and verifies that they contribute to the increase in capacity.
- Mike analyzes in depth the process of this service to know where time is lost, and where it is possible to save time.

At the end of the analysis meeting, they highlight that certain actions can be started without waiting for the complete protocol. The modification of the planning, associated with these decisions and other small actions, allows to reduce by 32% the duration of the preparation of clinical tests.

2.3.3. The role of management

Throughout this second part, the author shows the essential role of hierarchy in this type of approach:

1st example:

By planning the projects the Critical Chain way, a collaborator of Mike Knight realizes that a project will be completed in 9 months more than what was originally planned. By analyzing the old and the new planning, Mike realizes that the hierarchy had imposed this deadline, but that it can in no case be held. He decides to inform the CEO of the company. The latter proposes to delete the project buffer in order to announce a more ambitious deadline. Mike refuses by reminding him of the role of the buffer which must in no case be deleted.

2nd example:

Mike Knight is confronted by certain collaborators who do not believe in the effectiveness of this method. They do not want to give up multitasking, on the pretext that it is impossible or that they work better in this situation. They believe that the Critical Chain is a fashion effect, etc. An intervention by the company's CEO on the importance of Critical Chain, broadcasted on Altus Labs's television channel, helped to change the behavior of these people.

3rd example:

During a stormy discussion between Mike Knight and the company's CEO, Mike explains that the main difficulty in implementing this approach lies in the change of the company's culture. Currently, the culture of Altus Labs is changing as people know that the Critical Chain is management priority, and they have seen their manager lead by example.

3. Conclusion

This book shows that by acting on different key levers of project management, such as the integration of resources in project planning, the rationalization of the project portfolio, behavioral changes or even simplification of the management tools, according to the logic carried by the Critical Chain, it is possible to obtain notable results such as:

- The acceleration of strategic projects whose value is estimated in billions of dollars or Euros,
- The faster availability of products, in this case medicines, to customers,
- Significant reduction in Time-To-Market.

By writing *Be Fast or Be Gone* about Critical Chain, Andréas Scherer reproduces, to a lesser extent, what his illustrious predecessor Eliyahu Goldratt achieved with his first novel *The Goal*, with the same founding concept of constraint management.

Indeed, in the world of production, Eliyahu Goldratt's book constitutes a world bestseller with more than 7 million copies sold in 32 languages. He describes how to implement the ideas of Theory of Constraints in a factory with the Drum - Buffer - Rope method. Andréas Scherer does the same in the world of R&D and industrialization by presenting, with the Critical Chain method, another very important component of Theory of Constraints.